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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,031	02/28/2005	Takanori Miyasaka	Q86579	4777
23373	7590	06/23/2006	EXAMINER DESTA, ELIAS	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			ART UNIT 2857	PAPER NUMBER

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/526,031

Applicant(s)

MIYASAKA ET AL.

Examiner

Elias Desta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-28 and 49-52 is/are allowed.
- 6) ☒ Claim(s) 29-37 and 53-59 is/are rejected.
- 7) ☒ Claim(s) 38-48, 60 and 61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 09/27/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## Detailed Action

### Claim Objection

1. Claims 38-48 are objected to because of the following minor informalities:
  - In reference to claims 38 and 39: the phrase “every second time period” should be “every second”. Correction is required. Claims 40-48 and 61 are also objected to because of their dependency on the base claims.

### Claim rejection – 35 U.S.C. § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 29-36 are rejected under 35 U.S.C. 102(b) as anticipated by Quist et al. (U.S. Patent 6,199,018, hereon Quist).

In reference to claim 29: Quist teaches a machine abnormality diagnosis system for sensing a presence or absence of an abnormality of a sliding or rotating body in a machinery facility (bearing) (see Quist, column 2, lines 12-35). The system includes:

- A sensor unit having one of plural sensing elements for sensing signal emitted from the bearing (see Quist, Fig. 2C-2);

- A calculating processing portion for executing a calculating process to decide the presence or absence of the abnormality in the bearing based on an output of the sensing element (see Quist, Figs. 9-1 and 9-2); and
- A calculating/processing portion having a microcomputer (see Quist, Fig. 1).

With regard to claim 30: Quist further teaches that the sensor unit is incorporated into the bearing body (see Quist, column 3, lines 30-36).

With regard to claims 31-34: Quist further teaches that the microcomputer is fitted to the bearing of the machine, which includes the sensors integrated to the bearing (see Quist, Fig. 2E).

With regard to claims 35 and 36: Quist further teaches that the bearing abnormality diagnosis system includes temperature sensor and the calculating/processing portion includes a CPU, ADC, filter, comparator, RAM, DAC, communication module and external interface (such as PC interface) (see Quist, Figs. 1 and 2E).

With regard to claim 37: Quist further teaches that the bearing abnormality diagnosis system includes a peak factor (see Quist, Fig. 10B, step 104).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by

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the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 53-59 are rejected under 35 U.S.C. 102(e) as anticipated by Takizawa et al. (U.S. PAP 2005/0259903, hereon Takizawa).

In reference to claim 53: Takizawa teaches a bearing unit including an inner ring having an inner ring raceway surface, an outer ring having an outer raceway surface, a plurality of rolling elements arranged relatively rotating between the inner ring raceway surface and the outer ring raceway surface, and a retainer for holding the rolling elements, whereby a bearing to which a radial load is applied is arranged in a bearing housing (see Takizawa, Figs. 6A and 6B). The bearing unit includes abnormality sensing means provided in a loading range of the bearing housing for sensing an abnormality from at least one selected from a vibration sensor and temperature sensor installed in a single case (see Takizawa, Fig. 11 and 13B).

With regard to claim 54: Takizawa further teaches that the flat portion is provided to a part of an outer peripheral surface of the bearing housing on the loading range side, and the abnormality sensing means is fixed to the flat portion (see Takizawa, Fig. 6B).

With regard to claims 55-57: Takizawa further teaches that the abnormality sensing means is arranged on an outer diameter portion of the bearing housing on the loading range side in the center portion of the bearing width or raceway surface

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(see Takizawa, Fig. 1B), and the decision result outputting portion that decides a presence or absence of the abnormality is based on the signal sent out via the signal carrying means and output decision result (see Takizawa, Figs. 19 and 20, section 210 is also imbedded in the bearing).

With regard to claims 58 and 59, Takizawa further teaches that the abnormality sensing means is embedded/fixed on a recess portion formed on the bearing housing, and then secured by molding a clearance between the abnormality sensing means and the recess portion and the abnormality sensing means is fixed to the recess portion via a spacer (see Takizawa, Figs. 17B, 18 and 19).

### Allowable Subject Matter

6. Claim 60 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Allowance

7. Claims 1-28 and 49-52 are allowed. The following is an examiner's statement of reasons for allowance:

In reference to claims 1, 24 and 49: Quist teaches a distributed diagnostic system in which the plurality of local monitoring devices collect local information concerning various machines and process that information (see Quist, column 2, lines 10-35) and Takizawa teaches a bearing device and ring with sensor for the

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bearing device with a diagnostic where a detecting sensor circuit is attached to the inner race of the bearing (see *Takizawa*, Fig. 6B). However, none of these references teach a controlling processing portion for feeding back a control signal to a control system of the railway vehicle based on the decision result.

The remaining claims 2-23, 25-28, 50-52 are dependent upon claims 1, 24 and 49 and contain further limitations.

### Conclusion

8. Citation of pertinent prior art

- ULB (ULB Article, 'A Labview mini-expert to identify bearing defects automatically') teaches the method of processing bearing parameters in anti-friction bearing using Labview software.
- Narita et al. (U.S. PAP 2002083779) teaches a bearing test method and bearing test device for bearings in which a non-contact state is maintained between the shaft element and the bearing element in a normal rotation state.
- Lofall (U.S. Patent 6,484,109) teaches diagnostic vibration data collector and analyzer for machine under test.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (571)-272-2214. The examiner can normally be reached on M-Th (8:30-7:00).

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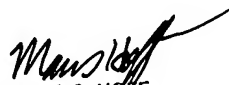
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have Questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Elias Desta  
Examiner  
Art Unit 2857

- e.d

June 7, 2006

  
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